

Arizona Ranching Budgets: 2016

az1734

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THE UNIVERSITY OF ARIZONA
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Cooperative Extension

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Introduction

The dependency of Arizona ranchers on federal lands has been well documented. Mayes and Archer (1982) estimated that public and state grazing lands outside of the Indian reservations account for 85% of the total grazing land in Arizona. The partnership between private ranchers, state lands, and the federal government comes with many complex factors that influence the cost of doing business both in terms of variable and fixed costs. Not only are the regulations, fees, and enforcement of regulations a challenge for managing mixed land ownership, but additional costs from vandalism, theft, and daily disruptions of operations add to the normal operating expenses (Ruyle et al., 2000). Ownership and maintenance of range improvements, such as wells, spring development, and dirt tanks, etc., is also complicated by the rangeland ownership mix. This study is designed to examine the cost of ranching for different geographic areas in Arizona and show how different production costs exist throughout the state.

Objectives

This study looks at the cost and return estimates for typical cow/calf operations in each of the five ranching regions of Arizona (see page 13). Each region was developed based on the typical land ownership pattern associated with a representative cow/calf operation within the region. Once the typical ownership patterns were defined and the boundaries were drawn, other characteristics were developed to describe each region. Land ownership is defined by the percentage of federal (BLM & USFS),¹ state, and private lands grazed by the ranch operation in any given year. This report is intended to serve as a guide to estimate actual costs and is not representative of any particular ranch. Furthermore, the density of cattle within a region is not uniformly distributed so that our cost of production estimate may be fairly representative for the cattle produced from the region but **not** representative for much of the land in the region. For a more in-depth analysis of the rangeland and carrying capacity within any ranching region, go to the following web site:

<https://extension.arizona.edu/gila-reading-range>.

1. Bureau of Land Management (BLM) and United States Forest Service (USFS).

Ranching Regions of Arizona

Each ranching region represented in this study is defined at the beginning of each budget. Included in the descriptions are a map of the identifying geographic boundaries of the region, each region's land ownership pattern, a brief summary of the vegetation and climate characteristics typically found within the region, and a list of the land resource references found within each region.

Regional Budget Description

This and the section on Ranch Investments describe the development and structure of the budgets for each region. The budgets are laid out on three pages. The first two pages, Ranch Budget, list the main budget information. The third page, Ranch Investments, contains the descriptions of the assets owned by the representative ranch. The Ranch Budget comprises six distinct sections: 1) Herd Descriptions; 2) Value of Production; 3) Variable Costs including feed costs, other variable costs, interest on variable costs, and returns above variable costs; 4) Ownership Costs including cash overhead costs and non-cash overhead costs; 5) Returns above cash and total costs; and 6) Breakeven Calculations. All cost and return estimates were calculated using a high range and a low range for both the total cost and return basis and for the per cow basis. Each area of the budget will be discussed in further detail.

Herd Descriptions

This section defines the average herd size, calving percentage, culling rate, bull-to-cow ratio, and number of replacement heifers retained for each ranching region. The numbers were derived from regional meetings with local ranchers and University of Arizona Extension personnel and an online survey sent out through the *Livestock Monitor Newsletter* email list. The numbers are perceived as weighted averages or representative and should be used as a guide; they are not meant to represent a particular ranch.

Value of Production

Livestock sale prices are averages derived from “Weekly Cattle Prices” (CattleFax, 2016 and LMIC, 2016) for Arizona and Clovis, NM, from 1999 to 2016. To moderate price swings, high and low ranges were developed around the Consumer Price Index adjusted 2016 dollar mean price for each group. The high and low prices represent +/- one standard deviation around the mean price. The livestock weights were obtained from the same ranching groups mentioned in the Herd Descriptions section.

Variable Costs

Variable costs represent expenses that vary with annual production levels of the ranching operation. For this publication, variable costs are presented under four sub categories.

- a) Feed costs,
- b) Other variable costs,
- c) Interest on variable costs, and
- d) Returns above variable costs.

2. An animal unit (AU) is a 1,000-lb cow with calf, or equivalent. An AU is the amount of forage consumed by one AU in one year.

Feed costs include hay, grazing, salt and minerals, protein supplements, and other. All feed costs except grazing are calculated on the total amount of product consumed per year. Grazing costs are presented on an Animal Unit Yearlong (AUY)² basis for public grazing permits for BLM, state, USFS, and private (both owned and leased) rates. Grazing fees are charged for the percentage of time the total number of animals are grazing on each type of permit.

Other variable costs include such items as marketing, hauling, fence repair, hired labor, operating costs on equipment, veterinary supplies and medicine, machinery, and vehicles.

Interest on variable costs is the opportunity cost of the capital used in the production process at 10.5% for 8 months.

Ownership Costs

Ownership costs or fixed costs are those costs which do not change with annual production levels. Ownership costs are presented in two categories: cash and non-cash. Cash ownership costs are overhead costs, taxes, insurance, and total Animal Unit (AU) cost of the grazing permit(s) tied to the ranch. Non-cash ownership costs, such as purchased breeding livestock, machinery, horses, and housing, are calculated using the capital recovery method³ and a detailed list of all assets is presented on the Ranch Investments page. An interest charge on average investment was used and represents the opportunity cost⁴ for retaining the livestock. The high value represents 100% owner equity at current replacement value while the low value represents a 65% ownership or a mix of new and old assets.

Ranch Investments

The Ranch Investments page defines the typical assets associated with the yearly ranching operation. The table is divided into five sections:

- 1) Land Values,
- 2) Building and Improvements,
- 3) Machinery and Vehicles,
- 4) Purchased Livestock, and
- 5) Retained Livestock.

All asset values are current replacement values.

Land Values

This section presents the total acreage of privately owned land and the estimated number of AUs associated with the ranching region's herd size. The total acreage of privately owned lands associated with each ranch area was derived from the same producer panel previously mentioned. The values for both private land and the ranch's public AUs represent average values obtained from the *Spring Agricultural Outlook Forum Proceedings* presented by the Arizona Chapter of the American Society of Farm

3. Annual capital recovery is the method of calculating depreciation and interest recommended by the National Task Force on Commodity Costs and Returns Measurement Methods (AAEA, 1998).

4. Capital invested in livestock would earn interest or other revenue in alternative investment opportunities. Either the interest paid for the use of the capital or its opportunity costs, in the case that the investment is for savings, should be assigned as a cost for the use of the capital.

Managers and Rural Appraisers for the year 2015. The total number of AUs is estimated as 1.35 times the total number of AUYS associated with each ranch (Torell et al., 1998). This is 1.00 AU per cow and 0.35 AU per calf.

Building & Improvements

While building ownership and improvements constitute a large part of the capital investment in the Arizona ranching industry, the actual ownership of range assets depends on the location of the asset. Range assets purchased and installed under a cooperative agreement located on USFS or BLM lands are considered property of the United States and therefore are not part of the individual ranch asset portfolio. Only those assets purchased and installed by the ranch owner on private, state, and BLM lands are considered a ranch asset in this study.

Machinery & Vehicles

The machinery and vehicle mix found on each ranch was estimated from the rancher panels for each region. The machinery and vehicle costs are updated from the *2000–2001 Arizona Farm Machinery Costs Extension Bulletin* except for horse tack and miscellaneous equipment. Horse tack and miscellaneous equipment costs were estimated from the rancher panels for each region and represent the estimated replacement value for all items.

Purchased Livestock

Bulls and horses are the only livestock listed as purchased in this study. Cows and replacement heifers are raised on the ranch and considered retained livestock. The total number of horses represents the estimated average number of horses on each ranch and the price for an average ranch horse. The total number of bulls is calculated from the cow-to-bull ratio listed at the top of the budget page. The price for bulls represents the average price for the replacement of a breeding-age animal within each region.

Retained Livestock

The total number of cows and replacement heifers are the same numbers as reported on the Ranch Budget page. The values listed reflect the average value for replacement animals reported within each region. A lower interest rate is used to reflect a low-risk investment.

Findings

The following discussion is centered on the comparisons between each of the ranching regions. The summaries are presented on a dollar per cow basis. The per cow basis was chosen over an AUY basis to focus on the actual decision units found on each of the area ranching operations. In all areas, the ranchers interviewed reported understocking of the actual public grazing carrying capacity. This understocking can be attributed to several factors including weather, management, federal and state policies, or any combination of these factors that restrict an individual ranch from utilizing all of its available AUYS.

Table 1. Production Characteristics of Arizona Ranching Regions

	Units	Strip	Plateau	Central Mountain	Western Desert	Southeastern
Number of Cows	<i>Head</i>	325	400	300	300	250
Animal Units	<i>AUY</i>	439	540	405	405	375
Replacement Rate	%	10	10	15	10	15
Bull to Cow Ratio	<i>Head</i>	1:15	1:15	1:15	1:15	1:20
Calf Crop	%	75	80	70	75	80
Steer Wt	<i>Lb</i>	600	625	550	600	600
Heifer Wt	<i>Lb</i>	570	594	523	570	570
Cull Cow Wt	<i>Lb</i>	900	900	900	900	900
Cull Bull Wt	<i>Lb</i>	1150	1250	1200	1250	1300

Table 1 presents the common production characteristics for the five ranching regions. Generally, all of the areas have similar characteristics with the main differences occurring in the number of cows, animal units, calf crop percentage, and average calf weights. The Plateau Region reported the largest average herd size at 400 cows. The other regions ranged from 325 cows in the Strip Region, to 300 cows in both the Central Mountain and Western Desert, to a herd size of 250 in the Southeastern Region. As expected, the AUYS followed the same pattern as the cow herd size since the number of AUYS is calculated from the total number of cows found on each ranch. The calf crop percentage varied across the regions, ranging from a high of 80 percent in both the Plateau and Southeastern regions to a low of 70 percent in the Central Mountain Region. Steer calf weights were reported as relatively similar with only a 75-pound difference between the heaviest and the lightest. The Plateau Region reported 625 for steers and 594 for heifers, while the Strip, Western Desert, and Southeastern regions all reported average weights of 600 for steers and 570 for heifers. The lightest average weights were reported in the Central Mountain Region at 550 for steers and 523 for heifers. The Central Mountain, Plateau, and Strip areas generally come closer to being classified as cow/yearling operations and may take an extended period of time to obtain their reported weights. However, in this study we are looking only at the cow/calf operations and the weights are reported as such.

Table 2. Net Returns for Each Arizona Ranching Region (High Rev/High Cost)

All values in \$/cow

	Strip	Plateau	Central Mountain	Western Desert	Southeastern
Revenues	\$763	\$841	\$633	\$745	\$798
Feed Costs	\$73	\$101	\$48	\$57	\$103
Total Variable Costs	\$297	\$274	\$251	\$259	\$390
Cash Ownership	\$23	\$161	\$41	\$172	\$32
Total Ownership Costs	\$196	\$490	\$185	\$448	\$271
Returns Above Cash Costs	\$442	\$406	\$340	\$314	\$376
Returns Above Total Costs	\$270	\$76	\$197	\$38	\$137

Table 2 provides a side-by-side comparison of the total costs and revenues for each of the regions under a high revenue and high cost scenario. The two cost areas showing the greatest disparities are feed costs and ownership costs. Feed costs varied from a high of \$103 per cow in the Southeastern Region to a low of \$48 per cow in the Central Mountains. The total ownership costs showed a more dramatic divergence with a high of \$490 per cow in the Plateau Region and a low of \$185 per cow in the Central Mountains. The differences between ownership costs and to some degree feed costs stem mainly from the ownership patterns found within each region. The Plateau Region contains the largest percentage of private land while the Strip and Central Mountain regions have the smallest; they also have the lowest ownership costs. Under the high revenue/high cost scenario, all regions are able to cover all cash costs. When non-cash costs are added, all regions continue to report returns above total costs.

Table 3. Net Returns for Each Arizona Ranching Region (Low Rev/Low Cost)

All values in \$/cow

	Strip	Plateau	Central Mountain	Western Desert	Southeastern
Revenues	\$455	\$501	\$380	\$445	\$477
Feed Costs	\$59	\$79	\$40	\$47	\$82
Total Variable Costs	\$224	\$203	\$193	\$195	\$284
Cash Ownership	\$15	\$104	\$27	\$112	\$21
Total Ownership Costs	\$123	\$314	\$127	\$287	\$172
Returns Above Cash Costs	\$216	\$193	\$160	\$137	\$172
Returns Above Total Costs	\$108	(\$17)	\$60	(\$38)	\$21

The results are somewhat different for the low revenue/low cost scenario (table 3). All regions are able to cover total cash costs, but only the Strip, Central Mountain, and Southeastern regions report positive returns above total costs. Both the Plateau and Western Desert regions, at -\$17 and -\$38 per cow respectively, were unable to cover their total costs. The budgets for each region give more detailed descriptions of all costs and returns for both the high revenue/high cost scenario and the low revenue/low cost one.

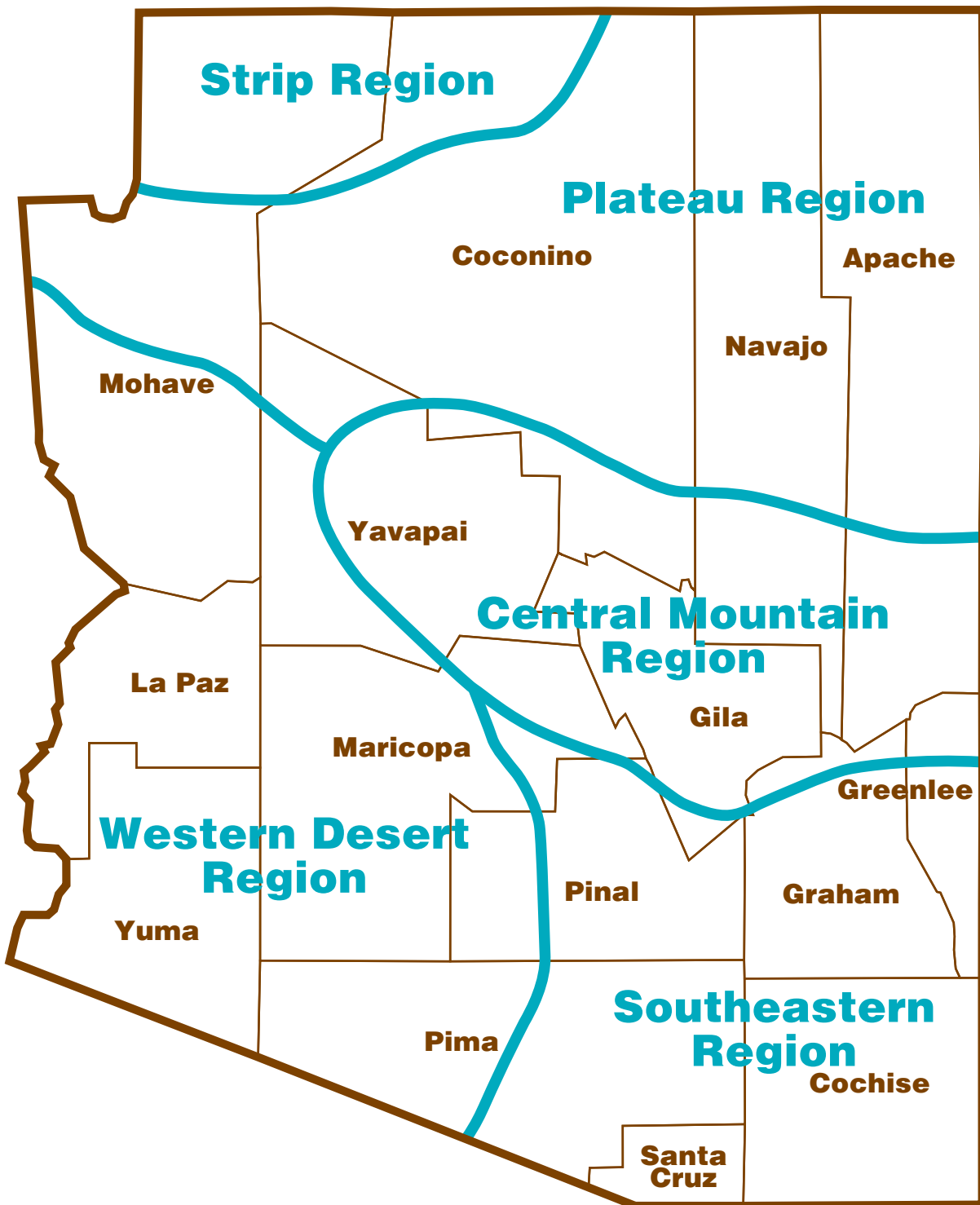
Table 4. Net Returns for Each Arizona Ranching Region (Low Rev/High Cost)

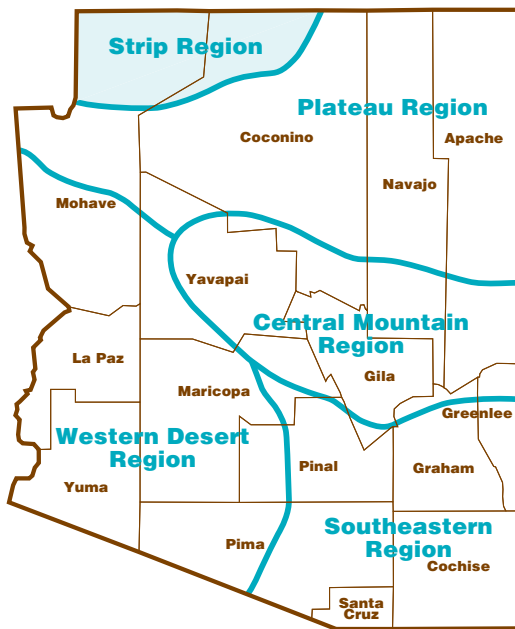
All values in \$/cow

	Strip	Plateau	Central Mountain	Western Desert	Southeastern
Revenues	\$455	\$501	\$380	\$445	\$477
Feed Costs	\$73	\$101	\$48	\$57	\$103
Total Variable Costs	\$297	\$274	\$251	\$259	\$390
Cash Ownership	\$23	\$161	\$41	\$172	\$32
Total Ownership Costs	\$196	\$490	\$185	\$448	\$271
Returns Above Cash Costs	\$134	\$66	\$879	\$13	\$55
Returns Above Total Costs	(\$38)	(\$264)	(\$56)	(\$263)	(\$184)

Table 4 presents a ranching operation characterized as low revenue/high cost. Under this scenario, all of the ranching regions are able to cover all their cash costs, but none were able to cover their total expenses. The negative returns to total costs ranged from a high of -\$264 per cow in the Plateau Region to a low of -\$38 per cow in the Strip. From the analysis of tables 2, 3, and 4, only the combinations with high revenues allowed ranches in all regions to return a profit on all costs. Low production costs alone are not a sufficient condition for profitability.

ARIZONA RANCHING REGIONS



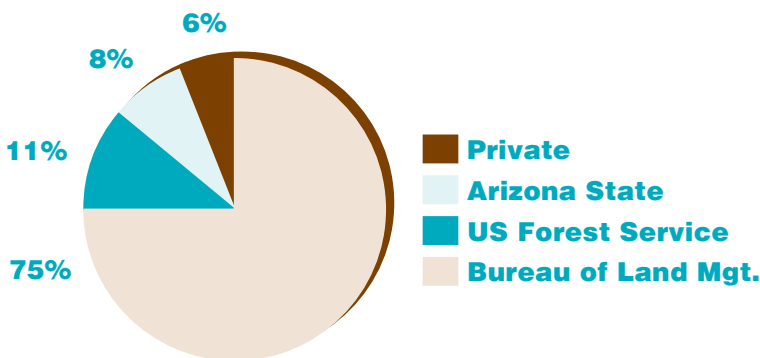


STRIP REGION

The Strip Region includes that portion of Mohave and Coconino counties north of the Colorado River. Elevation varies from about 1,000 feet along the Colorado River to over 9,000 feet on the Kaibab Plateau. Rainfall averages about eight inches, with a low of four inches to a high of 30 on some of the

high mountains. Approximately 45% of this precipitation falls from June through September. The remaining 55% falls from October through May. The highest mean monthly temperature is 89° F. while the lowest is 29° F. Vegetation varies from cactus to ponderosa pine. Mesquite, piñon, juniper, sagebrush, four wing saltbush, winterfat, grama grass, galleta, and numerous annuals are also found in the area. The land ownership mix common to this region consists of approximately 75% grazing occurring on Bureau of Land Management (BLM) land, 11% on United States Forest Service (USFS) land, 8% on state land, and the remaining 6% on private land. Listed land resource units found within the region are Mohave Basin & Range, Colorado & Green River Plateaus, Arizona Interior Chaparral, and Arizona & New Mexico Mountains.

STRIP REGION LAND OWNERSHIP



Ranch Budgets

Herd Descriptions

Breed Herd Size 325 Cow-to-Bull Ratio 15 Calf Crop Percentage¹ 75% Cull Rate 10% Repl. Heifers Kept 33

Value of Production

	Quantity	Weight	High Price ²	Low Price	High Value	Low Value	Value per Cow		New Value
							High	Low	
Steer Calves	122	600	\$1.84	\$1.09	\$134,725	\$79,444	\$414.54	\$244.44	
Heifer Calves	89	570	\$1.67	\$0.99	\$84,872	\$50,210	\$261.15	\$154.49	
Cull Cows	33	900	\$0.76	\$0.48	\$22,218	\$14,023	\$68.36	\$43.15	
Cull Bulls	5	1150	\$0.96	\$0.66	\$6,002	\$4,123	\$18.47	\$12.69	
Total Head Sold	249								
Total Value Produced					\$247,818	\$147,799	\$762.52	\$454.77	

Variable Costs

	Units	Quantity/ Percent	High Price	Low Price	High Cost	Low Cost	Value per Cow		New Value
							High	Low	
1. Feed Costs									
Hay	Ton	60.00	\$225	\$169	\$13,500	\$10,125	\$41.54	\$31.15	
BLM	AUY	75%	\$16.20	\$16.20	\$4,680	\$4,680	\$14.40	\$14.40	
State	AUY	8%	\$27.60	\$27.60	\$850	\$850	\$2.62	\$2.62	
USFS	AUY	11%	\$16.20	\$16.20	\$686	\$686	\$2.11	\$2.11	
Private (Owned)	AUY	6%	\$21.10	\$11.10	\$488	\$257	\$1.50	\$0.79	
Private (Leased Grazing)	AUY	0%	\$115.00	\$48.00	\$0	\$0	\$0.00	\$0.00	
Salt & Minerals	Ton	6.00	\$230	\$173	\$1,380	\$1,035	\$4.25	\$3.18	
Protein Supplements	Ton	5.00	\$400	\$300	\$2,000	\$1,500	\$6.15	\$4.62	
Other		0.00	\$0	\$0	\$0	\$0	\$0.00	\$0.00	
Subtotal Feed Costs					\$23,584	\$19,133	\$72.57	\$58.87	
2. Other Variable Costs									
Vet and Medicine					\$4,000	\$3,000	\$12.31	\$9.23	
Livestock Hauling					\$4,700	\$3,525	\$14.46	\$10.85	
Fence Repair					\$5,000	\$3,750	\$15.38	\$11.54	
Hired Labor					\$30,000	\$22,500	\$92.31	\$69.23	
Operating Costs: Equipment & Machinery					\$4,700	\$3,525	\$14.46	\$10.85	
Operating Costs: Vehicle					\$7,000	\$5,250	\$21.54	\$16.15	
Ranch Maintenance					\$600	\$450	\$1.85	\$1.38	
Marketing Costs ³		3.00%	\$29.84	\$17.80	\$7,435	\$4,434	\$22.88	\$13.64	
Other					\$5,500	\$4,125	\$16.92	\$12.69	
Subtotal Other Variable Costs					\$68,935	\$50,559	\$212.11	\$155.57	
3. Interest on Variable Costs									
Sum of Variable Costs X Months Borrowed X Interest Rate per Month									
Annual Interest Rate					6.5%				
Number of Months Borrowed					8				
Interest Costs					\$4,009	\$3,020	\$12.34	\$9.29	
Total Variable Costs					\$96,528	\$72,712	\$297.01	\$223.73	
4. Returns Above Variable Costs					\$151,290	\$75,087	\$465.51	\$231.04	

Ownership Costs⁴

	High	Low	Value Per Cow		New Value
			High	Low	
Cash Costs					
<i>Taxes & Insurance</i>	\$5,629	\$3,659	\$17.32	\$11.26	
<i>Overhead</i>	\$2,000	\$1,300	\$6.15	\$4.00	
Total Fixed Cash	\$7,629	\$4,959	\$23.47	\$15.26	
Non Cash Costs					
<i>Purchased Livestock</i>	\$6,763	\$4,396	\$20.81	\$13.53	
<i>Machinery & Equipment</i> ⁵	\$16,537	\$10,749	\$50.88	\$33.07	
<i>Housing & Improvements</i>	\$6,966	\$4,528	\$21.43	\$13.93	
<i>Interest on Retained Livestock</i> ⁶	\$16,607	\$10,795	\$51.10	\$33.21	
<i>Management & Operation Labor (6% Of Gross Returns)</i>	\$9,077	\$4,505	\$27.93	\$13.86	
Total Fixed Non-Cash	\$55,950	\$34,972	\$172.15	\$107.61	
Total Fixed Costs Cash & Non Cash	\$63,579	\$39,931	\$195.63	\$122.87	
Total Cash Costs Fixed and Variable Costs	\$104,157	\$77,671	\$320.48	\$238.99	
Total Costs Fixed and Variable Costs	\$160,107	\$112,643	\$492.64	\$346.60	
Returns Above Total Cash Costs	\$143,662	\$70,128	\$442.04	\$215.78	
Returns Above Total Costs	\$87,711	\$35,156	\$269.88	\$108.17	

Breakeven Calculations

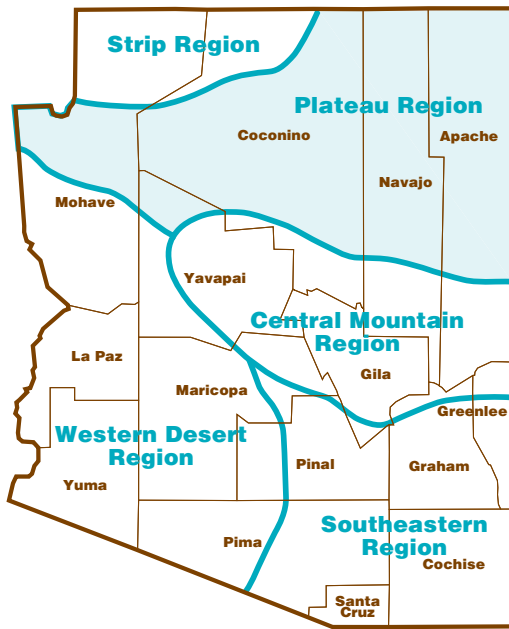
	High Prices				Low Prices			
	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs
Required Average Calf Prices Cash Cost (Cwt)	\$67.69	\$73.04	\$50.99	\$54.47	\$67.69	\$73.04	\$50.99	\$54.47
Required Average Calf Prices Total Costs (Cwt)	\$67.69	\$112.28	\$50.99	\$79.00	\$67.69	\$112.28	\$50.99	\$79.00

1. Calf crop is defined as the actual number of calves sold divided by the total number of cows (assumption is all cows are exposed).
2. Prices represent a nineteen-year Arizona average price received +/- 1 Standard Deviation. Data from CattleFax report for Arizona feeder cattle cash prices.
3. Marketing prices include commissions, brand inspections, beef council, yardage, feed, and insurance at 3% on all animals sold.
4. Annual capital recovery is the method of calculating depreciation and interest recommended by the National Task Force on Commodity Costs and Returns Measurement Methods.
5. The 35% reduction in asset values represents a mix of new and used machinery.
6. Interest on average investment.

Ranch Investments

Number and Item	Price Per Unit	10-Yr-Avg Rate of Return ¹	Purchase Price	Salvage/Cull Value	Useful Life	Livestock Share	Annual Taxes & Insurance	Annual Capital Recovery
Land Values								
75 Acres of private land	\$1,000	3.9%	\$75,000	\$75,000			\$1,728	
439 AU Values ²	\$1,800	3.9%	\$789,750	\$789,750				
		Sub Total	\$864,750					
Buildings and Improvements								
1 Miles of pipeline	\$2,500	3.9%	\$2,500	\$250	25	100	\$22	\$152
1 Wells	\$12,300	3.9%	\$12,300	\$1,230	25	100	\$108	\$749
2 Miles of Fence	\$9,000	3.9%	\$18,000	\$1,800	20	100	\$158	\$1,252
0 Dirt Tank	\$15,000	3.9%	\$0	\$0	10	100	\$0	\$0
2 Corrals/Working Facilities	\$26,000	3.9%	\$52,000	\$5,200	30	100	\$458	\$2,876
1 Barns & Shop	\$35,000	3.9%	\$35,000	\$3,500	30	100	\$308	\$1,936
		Sub Total	\$119,800				\$2,782	\$6,966
		Interest Rate³						
Machinery & Vehicles								
1 1/2 ton pickup 4WD	\$20,700	10.0%	\$20,700	\$4,140	7	50	\$91	\$1,908
1 3/4 ton pickup 4WD	\$23,700	10.0%	\$23,700	\$4,740	7	75	\$156	\$3,276
1 Dozer/Tractor	\$10,000	10.0%	\$10,000	\$2,000	7	100	\$88	\$1,843
2 Gooseneck trailer	\$6,500	10.0%	\$13,000	\$2,600	7	100	\$114	\$2,396
1 Water truck	\$28,000	10.0%	\$28,000	\$5,600	7	100	\$246	\$5,161
1 Horse tack	\$5,000	10.0%	\$5,000	\$1,000	10	100	\$44	\$751
1 Misc. equipment	\$8,000	10.0%	\$8,000	\$1,600	10	100	\$70	\$1,202
		Sub Total	\$108,400				\$811	\$16,537
		Interest Rate⁴						
Purchased Livestock								
6 Horses	\$1,500	8.0%	\$9,000	\$3,420	10	100	\$79	\$1,105
22 Bulls	\$1,200	8.0%	\$26,000	\$9,880	4	100	\$229	\$5,657
35 Total AUYS								
		Sub Total	\$35,000				\$308	\$6,763
		Interest Rate						Interest on Investment
Retained Livestock								
325 Cows	\$750	8.0%	\$243,750	\$92,625				\$15,377
33 Replacement Heifers	\$600	8.0%	\$19,500	\$7,410				\$1,230
349 Total AUYS								
		Sub Total	\$263,250	\$100,035				\$16,607
		Total	\$1,391,200				\$5,629	\$30,265

1. The interest rate of 3.9% used to calculate the capital recovery cost is the USDA-ERS's ten-year-average, long-run rate of return to production assets for Arizona. 2. AU Numbers represent 1.35 times the total numbers of cows. This number should not be compared to the AUYS number on the budget page. 3. For intermediate assets, an interest rate of 2% above prime is used. 4. The 8% reflects a typical return on a low-risk investment (prime).

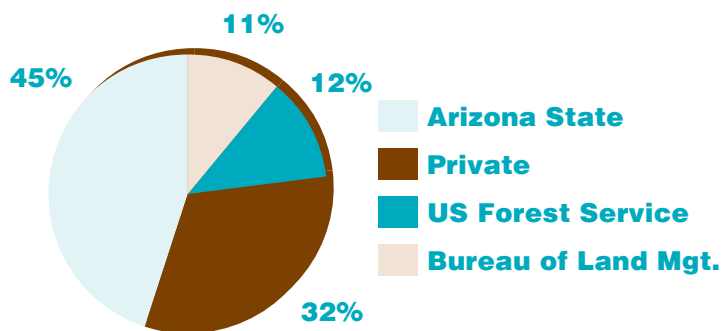


PLATEAU REGION

The Plateau Region includes Apache and Navajo counties north and east of the Sitgreaves and the Apache National Forests but excluding the Navajo Reservation. That portion of Coconino and Mohave counties south of the Colorado River and north of the Sitgreaves, Coconino, and Kaibab National For-

ests is also in the Plateau area. Elevation varies from about 4,000 feet along the Little Colorado River to 12,670 feet on Humphreys Peak north of Flagstaff. Rainfall averages about 14 inches per year, with a low of six inches to a high of 30 on some of the higher mountains. Approximately 50% of this precipitation falls from June through September. The remaining 50% falls from October through May. The highest mean monthly temperature is 77° F. while the lowest is 29° F. Common vegetation found in this area ranges from Ponderosa pine, spruce, fir, piñon, juniper, four wing saltbush, winterfat, and sagebrush to several species of grama and wheatgrass, Indian ricegrass, and galleta. The land ownership mix common to this region consists of approximately 45% grazing occurring on state land, 32% on private land, 12% on United States Forest Service (USFS) land, and the remaining 11% on Bureau of Land Management (BLM) land. Listed land resource units found within the region are Mohave Basin & Range, Colorado & Green River Plateaus, New Mexico & Arizona Plateaus & Mesas, Arizona Interior Chaparral, and Arizona & New Mexico Mountains.

PLATEAU REGION LAND OWNERSHIP



Ranch Budgets

Herd Descriptions

Breed Herd Size 400 Cow-to-Bull Ratio 20 Calf Crop Percentage¹ 80% Cull Rate 10% Repl. Heifers Kept 40

Value of Production

	Quantity	Weight	High Price ²	Low Price	High Value	Low Value	Value per Cow		New Value
							High	Low	
Steer Calves	160	625	\$1.84	\$1.09	\$184,240	\$108,641	\$460.60	\$271.60	
Heifer Calves	120	594	\$1.67	\$0.99	\$118,702	\$70,224	\$296.76	\$175.56	
Cull Cows	40	900	\$0.76	\$0.48	\$27,346	\$17,259	\$68.36	\$43.15	
Cull Bulls	5	1250	\$0.96	\$0.66	\$6,022	\$4,137	\$15.06	\$10.34	
Total Head Sold	325								
Total Value Produced					\$336,310	\$200,260	\$840.78	\$500.65	

Variable Costs

	Units	Quantity/ Percent	High Price	Low Price	High Cost	Low Cost	Value per Cow		New Value
							High	Low	
1. Feed Costs									
Hay	Ton	45.00	\$220	\$165	\$9,900	\$7,425	\$24.75	\$18.56	
BLM	AUY	11%	\$16.20	\$16.20	\$838	\$838	\$2.09	\$2.09	
State	AUY	45%	\$27.60	\$27.60	\$5,837	\$5,837	\$14.59	\$14.59	
USFS	AUY	12%	\$16.20	\$16.20	\$914	\$914	\$2.28	\$2.28	
Private (Owned)	AUY	22%	\$21.10	\$11.10	\$2,182	\$1,148	\$5.45	\$2.87	
Private (Leased Grazing)	AUY	10%	\$120.00	\$90	\$5,640	\$4,230	\$14.10	\$10.58	
Salt & Minerals	Ton	11.00	\$230	\$173	\$2,530	\$1,898	\$6.33	\$4.74	
Protein Supplements	Ton	30.00	\$420	\$315	\$12,600	\$9,450	\$31.50	\$23.63	
Other		0.00	\$0	\$0	\$0	\$0	\$0.00	\$0.00	
Subtotal Feed Costs					\$40,440	\$31,739	\$101.10	\$79.35	
2. Other Variable Costs									
Vet and Medicine					\$2,500	\$1,500	\$6.25	\$3.75	
Livestock Hauling					\$2,500	\$1,500	\$6.25	\$3.75	
Hired Labor					\$35,000	\$26,250	\$87.50	\$65.63	
Operating Costs: Equipment & Machinery					\$3,400	\$2,550	\$8.50	\$6.38	
Operating Costs: Vehicle					\$7,500	\$5,625	\$18.75	\$14.06	
Ranch Maintenance					\$1,200	\$900	\$3.00	\$2.25	
Marketing Costs ³		3.00%	\$31.04	\$18.49	\$10,089	\$6,008	\$25.22	\$15.02	
Other					\$2,500	\$1,875	\$6.25	\$4.69	
Subtotal Other Variable Costs					\$64,689	\$46,208	\$161.72	\$115.52	
3. Interest On Variable Costs									
<i>Sum of Variable Costs X Months Borrowed X Interest Rate per Month</i>									
Annual Interest Rate					6.5%				
Number of Months Borrowed					8				
Interest Costs					\$4,556	\$3,378	\$11.39	\$8.44	
Total Variable Costs					\$109,685	\$81,324	\$274.21	\$203.31	
4. Returns Above Variable Costs					\$226,625	\$118,936	\$566.56	\$297.34	

Ownership Costs⁴

	High	Low	Value Per Cow		New Value
			High	Low	
Cash Costs					
<i>Taxes & Insurance</i>	\$60,242	\$39,157	\$150.60	\$97.89	
<i>Overhead</i>	\$4,000	\$2,600	\$10.00	\$6.50	
Total Fixed Cash	\$64,242	\$41,757	\$160.60	\$104.39	
Non Cash Costs					
<i>Purchased Livestock</i>	\$10,468	\$6,804	\$26.17	\$17.01	
<i>Machinery & Equipment⁵</i>	\$16,237	\$10,554	\$40.59	\$26.38	
<i>Housing & Improvements</i>	\$71,103	\$46,217	\$177.76	\$115.54	
<i>Interest on Retained Livestock⁶</i>	\$20,440	\$13,286	\$51.10	\$33.21	
<i>Management & Operation Labor (6% Of Gross Returns)</i>	\$13,598	\$7,136	\$33.99	\$17.84	
Total Fixed Non-Cash	\$131,845	\$83,997	\$329.61	\$209.99	
Total Fixed Costs Cash & Non Cash	\$196,087	\$125,754	\$490.22	\$314.38	
Total Cash Costs Fixed and Variable Costs	\$173,927	\$123,081	\$434.82	\$307.70	
Total Costs Fixed and Variable Costs	\$305,772	\$207,078	\$764.43	\$517.70	
Returns Above Total Cash Costs	\$162,384	\$77,179	\$405.96	\$192.95	
Returns Above Total Costs	\$30,539	(\$6,818)	\$76.35	(\$17.05)	

Breakeven Calculations

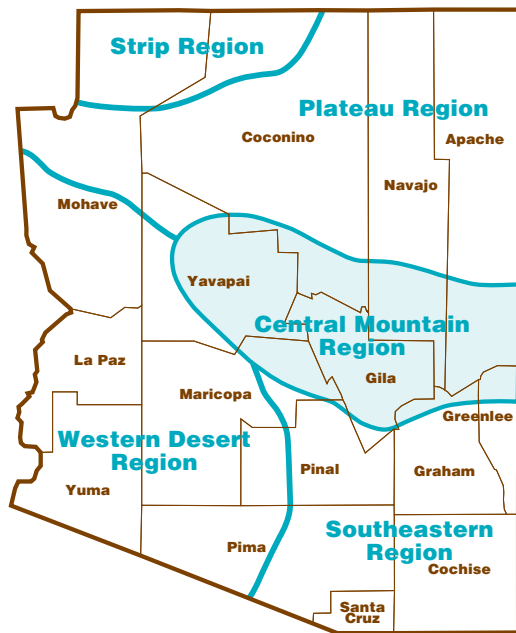
	High Prices				Low Prices			
	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs
Required Average Calf Prices Cash Cost (Cwt)	\$56.25	\$89.19	\$41.70	\$63.12	\$56.25	\$89.19	\$41.70	\$63.12
Required Average Calf Prices Total Costs (Cwt)	\$56.25	\$156.81	\$41.70	\$106.19	\$56.25	\$156.81	\$41.70	\$106.19

1. Calf crop is defined as the actual number of calves sold divided by the total number of cows (assumption is all cows are exposed).
2. Prices represent a nineteen-year Arizona average price received +/- 1 Standard Deviation. Data from CattleFax report for Arizona feeder cattle cash prices.
3. Marketing prices include commissions, brand inspections, beef council, yardage, feed, and insurance at 3% on all animals sold.
4. Annual capital recovery is the method of calculating depreciation and interest recommended by the National Task Force on Commodity Costs and Returns Measurement Methods.
5. The 35% reduction in asset values represents a mix of new and used machinery.
6. Interest on average investment.

Ranch Investments

Number and Item	Price Per Unit	10-Yr-Avg Rate of Return ¹	Purchase Price	Salvage/Cull Value	Useful Life	Livestock Share	Annual Taxes & Insurance	Annual Capital Recovery
Land Values								
1500 Acres of private land	\$750	3.9%	\$1,125,000	\$1,125,000			\$25,920	
540 AU Values ²	\$1,000	3.9%	\$540,000	\$540,000				
		Sub Total	\$1,665,000					
Buildings and Improvements								
10 Miles of pipeline	\$800	3.9%	\$8,000	\$800	25	100	\$70	\$487
2 Wells	\$12,300	3.9%	\$24,600	\$2,460	25	100	\$216	\$1,498
3 Windmills	\$20,000	3.9%	\$60,000	\$6,000	10	100	\$528	\$6,859
10 Dirt Tank	\$30,000	3.9%	\$300,000	\$30,000	10	100	\$2,640	\$34,293
60 Miles of Fence	\$6,000	3.9%	\$360,000	\$36,000	20	100	\$3,168	\$25,034
3 Corrals/Working Facilities	\$7,000	3.9%	\$21,000	\$2,100	30	100	\$185	\$1,162
2 Barns & Shop	\$16,000	3.9%	\$32,000	\$3,200	30	100	\$282	\$1,770
		Sub Total	\$805,600				\$33,009	\$71,103
		Interest Rate³						
Machinery & Vehicles								
1 1/2 ton pickup 4WD	\$20,700	10.0%	\$20,700	\$4,140	7	50	\$91	\$1,908
1 3/4 ton pickup 4WD	\$23,700	10.0%	\$23,700	\$4,740	7	75	\$156	\$3,276
1 Dozer/Tractor	\$10,000	10.0%	\$10,000	\$2,000	7	100	\$88	\$1,843
2 Gooseneck trailer	\$6,500	10.0%	\$13,000	\$2,600	7	100	\$114	\$2,396
1 Water truck	\$28,000	10.0%	\$28,000	\$5,600	7	100	\$246	\$5,161
1 Horse tack	\$5,000	10.0%	\$5,000	\$1,000	10	100	\$44	\$751
1 Misc. equipment	\$6,000	10.0%	\$6,000	\$1,200	10	100	\$53	\$901
		Sub Total	\$106,400				\$793	\$16,237
		Interest Rate⁴						
Purchased Livestock								
10 Horses	\$2,500	8.0%	\$25,000	\$9,500	10	100	\$220	\$3,070
20 Bulls	\$1,700	8.0%	\$34,000	\$12,920	4	100	\$299	\$7,398
38 Total AUUs								
		Sub Total	\$59,000				\$519	\$10,468
		Interest Rate						Interest on Investment
Retained Livestock								
400 Cows	\$750	8.0%	\$300,000	\$114,000				\$18,926
40 Replacement Heifers	\$600	8.0%	\$24,000	\$9,120				\$1,514
430 Total AUUs								
		Sub Total	\$324,000	\$123,120				\$20,440
		Total	\$2,960,000				\$60,242	\$97,808

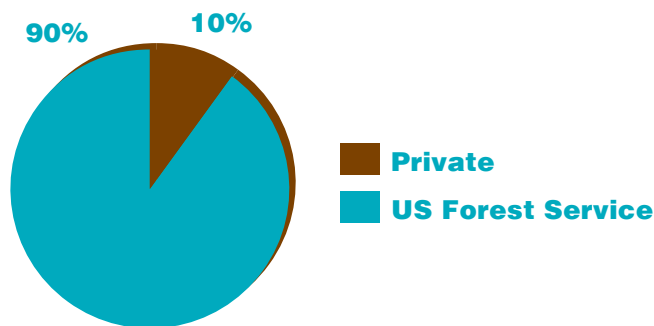
1. The interest rate of 3.9% used to calculate the capital recovery cost is the USDA-ERS's ten-year-average, long-run rate of return to production assets for Arizona. 2. AU Numbers represent 1.35 times the total numbers of cows. This number should not be compared to the AUU number on the budget page. 3. For intermediate assets, an interest rate of 2% above prime is used. 4. The 8% reflects a typical return on a low-risk investment (prime).



CENTRAL MOUNTAIN REGION

The Central Mountain Region includes portions of Yavapai, Coconino, Gila, Maricopa, Apache, Navajo, Graham, and Greenlee counties. Included in the area are Prescott, Kaibab, Coconino, Sitgreaves, Tonto, and Apache National Forests. Elevation varies from about 2,000 feet along the Salt River to a high of 11,490 feet on Baldy Peak. Rainfall averages from 10 inches per year in the lower elevations to over 30 inches on some of the higher mountains. Approximately 45% of this precipitation falls from June through September. The remaining 55% falls from October through May. The highest mean monthly temperature is 86° F. while the lowest is 29° F. Common vegetation found in this area ranges from desert growth of mesquite and cactus through piñon, jojoba, juniper, manzanita, emory, turbinella, gambel oak, ponderosa pine, tobosa, curley mesquite, and several species of grama and love grasses. The land ownership mix common to this region consists of approximately 90% on United States Forest Service (USFS) land and the remaining 10% on private land. Listed land resource units found within the region are Colorado & Green River Plateaus, Arizona Interior Chaparral, Arizona & New Mexico Mountains, Sonoran Basin & Range, Southeastern Arizona Basin & Range, and Southern Desertic Basins, Plains & Mountains.

CENTRAL MOUNTAIN REGION LAND OWNERSHIP



Ranch Budgets

Herd Descriptions

Breed Herd Size 300 Cow-to-Bull Ratio 15 Calf Crop Percentage¹ 70% Cull Rate 15% Repl. Heifers Kept 51

Value of Production

	Quantity	Weight	High Price ²	Low Price	High Value	Low Value	Value per Cow		New Value
							High	Low	
Steer Calves	105	550	\$1.84	\$1.09	\$106,399	\$62,740	\$354.66	\$209.13	
Heifer Calves	54	523	\$1.67	\$0.99	\$47,006	\$27,809	\$156.69	\$92.70	
Cull Cows	45	900	\$0.76	\$0.48	\$30,764	\$19,416	\$102.55	\$64.72	
Cull Bulls	5	1200	\$0.96	\$0.66	\$5,782	\$3,971	\$19.27	\$13.24	
Total Head Sold	209								
Total Value Produced					\$189,950	\$113,936	\$633.17	\$379.79	

Variable Costs

	Units	Quantity/ Percent	High Price	Low Price	High Cost	Low Cost	Value Per Cow		New Value
							High	Low	
1. Feed Costs									
Hay	Ton	30.00	\$175	\$131	\$5,250	\$3,938	\$17.50	\$13.13	
BLM	AUY	0.0%	\$16.20	\$16.20	\$0	\$0	\$0.00	\$0.00	
State	AUY	0.0%	\$28.68	\$28.68	\$0	\$0	\$0.00	\$0.00	
USFS	AUY	90.0%	\$16.20	\$16.20	\$5,555	\$5,555	\$18.52	\$18.52	
Private (Owned)	AUY	10.0%	\$21.10	\$11.10	\$804	\$423	\$2.68	\$1.41	
Private (Leased Grazing)	AUY	0.0%	\$145	\$109	\$0	\$0	\$0.00	\$0.00	
Salt & Minerals	Ton	6.00	\$220	\$165	\$1,320	\$990	\$4.40	\$3.30	
Protein Supplements	Ton	4.00	\$400	\$300	\$1,600	\$1,200	\$5.33	\$4.00	
Other		0.00	\$0	\$0	\$0	\$0	\$0.00	\$0.00	
Subtotal Feed Costs					\$14,529	\$12,105	\$48.43	\$40.35	
2. Other Variable Costs									
Vet and Medicine					\$1,100	\$825	\$3.67	\$2.75	
Livestock Hauling					\$1,045	\$784	\$3.48	\$2.61	
Hired Labor					\$35,000	\$26,250	\$116.67	\$87.50	
Operating Costs: Equipment & Machinery					\$4,500	\$3,375	\$15.00	\$11.25	
Operating Costs: Vehicle					\$5,500	\$4,125	\$18.33	\$13.75	
Ranch Maintenance					\$5,000	\$3,750	\$16.67	\$12.50	
Marketing Costs ³		3.00%	\$27.27	\$16.35	\$136	\$82	\$0.45	\$0.27	
Other					\$5,500	\$4,125	\$18.33	\$13.75	
Subtotal Other Variable Costs					\$57,781	\$43,316	\$192.60	\$144.39	
3. Interest on Variable Costs									
<i>Sum of Variable Costs X Months Borrowed X Interest Rate per Month</i>									
Annual Interest Rate					6.5%				
Number of Months Borrowed					8				
Interest Costs					\$3,133	\$2,402	\$10.44	\$8.01	
Total Variable Costs					\$75,444	\$57,822	\$251.48	\$192.74	
4. Returns Above Variable Costs					\$114,507	\$56,113	\$381.69	\$187.04	

Ownership Costs⁴

	High	Low	Value Per Cow High	Low	New Value
Cash Costs					
<i>Taxes & Insurance</i>	\$10,434	\$6,782	\$34.78	\$22.61	
<i>Overhead</i>	\$2,000	\$1,300	\$6.67	\$4.33	
Total Fixed Cash	\$12,434	\$8,082	\$41.45	\$26.94	
Non Cash Costs					
<i>Purchased Livestock</i>	\$9,598	\$6,238	\$31.99	\$20.79	
<i>Machinery & Equipment⁵</i>	\$10,434	\$6,782	\$34.78	\$22.61	
<i>Housing & Improvements</i>	\$4,744	\$3,084	\$15.81	\$10.28	
<i>Interest On Retained Livestock⁶</i>	\$16,125	\$10,481	\$53.75	\$34.94	
<i>Management & Operation Labor (6% Of Gross Returns)</i>	\$6,870	\$3,367	\$22.90	\$11.22	
Total Fixed Non-Cash	\$47,771	\$29,952	\$159.24	\$99.84	
Total Fixed Costs Cash & Non Cash	\$60,205	\$38,035	\$200.68	\$126.78	
Total Cash Costs Fixed and Variable Costs	\$87,878	\$65,905	\$292.93	\$219.68	
Total Costs Fixed and Variable Costs	\$135,649	\$95,857	\$452.16	\$319.52	
Returns Above Total Cash Costs	\$102,072	\$48,031	\$340.24	\$160.10	
Returns Above Total Costs	\$54,301	\$18,079	\$181.00	\$60.26	

Breakeven Calculations

	High Prices				Low Prices			
	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs
Required Average Calf Prices Cash Cost (Cwt)	\$66.99	\$78.04	\$51.35	\$58.52	\$66.99	\$78.04	\$51.35	\$58.52
Required Average Calf Prices Total Costs (Cwt)	\$66.99	\$120.46	\$51.35	\$85.12	\$66.99	\$120.46	\$51.35	\$85.12

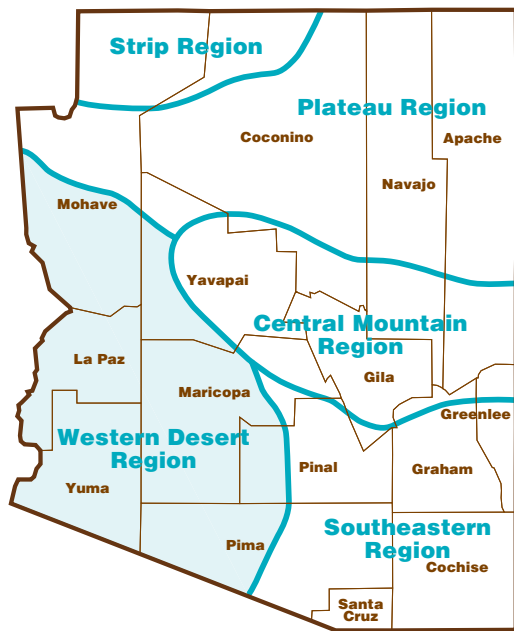
1. Calf crop is defined as the actual number of calves sold divided by the total number of cows (assumption is all cows are exposed).
2. Prices represent a nineteen-year Arizona average price received +/- 1 Standard Deviation. Data from CattleFax report for Arizona feeder cattle cash prices.
3. Marketing prices include commissions, brand inspections, beef council, yardage, feed, and insurance at 3% on all animals sold.
4. Annual capital recovery is the method of calculating depreciation and interest recommended by the National Task Force on Commodity Costs and Returns Measurement Methods.
5. The 35% reduction in asset values represents a mix of new and used machinery.
6. Interest on average investment.

Ranch Investments

Number and Item	Price Per Unit	10-Yr-Avg Rate of Return ¹	Purchase Price	Salvage/Cull Value	Useful Life	Livestock Share	Annual Taxes & Insurance	Annual Capital Recovery
Land Values								
60 Acres of private land	\$6,000	3.9%	\$360,000	\$360,000			\$8,294.40	
405 AU Values ²	\$1,700	3.9%	\$688,500	\$688,500				
		Sub Total	\$1,048,500					
Buildings and Improvements								
0.5 Miles of pipeline	\$1,500	3.9%	\$750	\$75	25	100	\$7	\$46
2 Wells	\$15,000	3.9%	\$30,000	\$3,000	25	100	\$264	\$1,827
1 Miles of Fence	\$9,000	3.9%	\$9,000	\$900	25	100	\$79	\$548
1 Corrals/Working Facilities	\$12,000	3.9%	\$12,000	\$1,200	30	100	\$106	\$664
1 Barns & Shop	\$30,000	3.9%	\$30,000	\$3,000	30	100	\$264	\$1,660
		Sub Total	\$81,750				\$9,014	\$4,744
		Interest Rate³						
Machinery & Vehicles								
1 1/2 ton pickup 4WD	\$20,700	10.0%	\$20,700	\$4,140	7	50	\$91	\$1,908
1 3/4 ton pickup 4WD	\$23,700	10.0%	\$23,700	\$4,740	7	50	\$104	\$2,184
1 Dozer/Tractor	\$10,000	10.0%	\$10,000	\$2,000	7	100	\$88	\$1,843
2 Gooseneck trailer	\$6,500	10.0%	\$13,000	\$2,600	7	100	\$114	\$2,396
1 Horse tack	\$5,000	10.0%	\$5,000	\$1,000	10	100	\$44	\$751
1 Misc. equipment	\$9,000	10.0%	\$9,000	\$1,800	10	100	\$79	\$1,352
		Sub Total	\$81,400				\$521	\$10,434
		Interest Rate⁴						
Purchased Livestock								
10 Horses	\$2,500	8.0%	\$25,000	\$9,500	10	100	\$220	\$3,070
20 Bulls	\$1,500	8.0%	\$30,000	\$11,400	4	100	\$264	\$6,528
38 Total AUYS								
		Sub Total	\$55,000				\$484	\$9,598
		Interest Rate						Interest on Investment
Retained Livestock								
300 Cows	\$750	8.0%	\$225,000	\$85,500				\$14,194
51 Replacement Heifers	\$600	8.0%	\$30,600	\$11,628				\$1,930
338 Total AUYS								
		Sub Total	\$255,600	\$97,128				\$16,125
		Total	\$1,522,250				\$18,313	\$31,303

1. The interest rate of 3.9% used to calculate the capital recovery cost is the USDA-ERS's ten-year-average, long-run rate of return to production assets for Arizona. 2. AU Numbers represent 1.35 times the total numbers of cows. This number should not be compared to the AUYS number on the budget page. 3. For intermediate assets, an interest rate of 2% above prime is used. 4. The 8% reflects a typical return on a low-risk investment (prime).

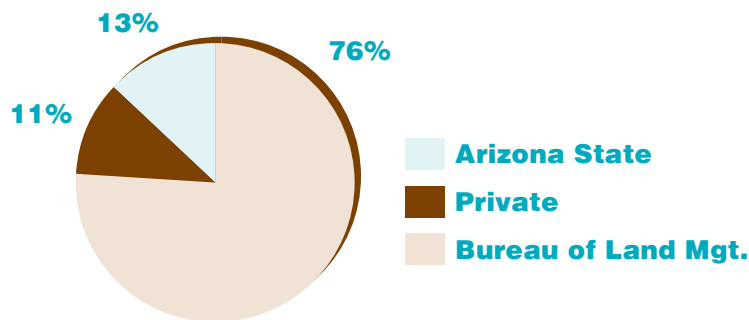
WESTERN DESERT REGION



The Western Desert Region includes all of La Paz and Yuma counties, the lower two-thirds of Mohave County, and Yavapai County southwest of the Prescott National Forest. Also included in this area are the western three-quarters of Maricopa County (excluding that portion included in the Tonto

National Forest), the western quarter of Pinal County, and the western half of Pima County. Elevation varies from about 100 feet near Yuma to a high of 8,266 feet on Hualapai Peak in Mohave County. Rainfall averages from three inches per year in the lower elevations to around 18 inches in the higher areas. Approximately 40% of this precipitation falls from June through September. The remaining 60% falls from October through May. The highest mean monthly temperature is 91° F. while the lowest is 35° F. Desert growth covers a large part of this area. The most common vegetation includes cacti, Joshua tree, mesquite, and desert shrubs; ponderosa pine is found on some of the mountaintops. Predominant grasses include several species of grama, plus some desert annuals. The land ownership mix common to this region consists of approximately 76% grazing occurring on Bureau of Land Management (BLM) land, 13% on state land, and the remaining 11% on private land. Listed land resource units found within the region are Mohave Basin & Range, and Southeastern Arizona Basin & Range.

WESTERN DESERT REGION LAND OWNERSHIP



Ranch Budgets

Herd Descriptions

Breed Herd Size 300 Cow-to-Bull Ratio 15 Calf Crop Percentage¹ 75% Cull Rate 10% Repl. Heifers Kept 36

Value of Production

	Quantity	Weight	High Price ²	Low Price	High Value	Low Value	Value per Cow		New Value
							High	Low	
Steer Calves	113	600	\$1.84	\$1.09	\$124,362	\$73,333	\$414.54	\$244.44	
Heifer Calves	77	570	\$1.67	\$0.99	\$72,646	\$42,977	\$242.15	\$143.26	
Cull Cows	30	900	\$0.76	\$0.48	\$20,509	\$12,944	\$68.36	\$43.15	
Cull Bulls	5	1250	\$0.96	\$0.66	\$6,022	\$4,137	\$20.07	\$13.79	
Total Head Sold	224								
Total Value Produced					\$223,540	\$133,390	\$745.13	\$444.63	

Variable Costs

	Units	Quantity/ Percent	High Price	Low Price	High Cost	Low Cost	Value per Cow		New Value
							High	Low	
1. Feed Costs									
Hay	Ton	34.00	\$175	\$131	\$5,950	\$4,463	\$19.83	\$14.88	
Blm	AUY	76%	\$16.20	\$16.20	\$4,457	\$4,457	\$14.86	\$14.86	
State	AUY	13%	\$27.60	\$27.60	\$1,299	\$1,299	\$4.33	\$4.33	
Usfs	AUY	0%	\$16.20	\$16.20	\$0	\$0	\$0.00	\$0.00	
Private (Owned)	AUY	6%	\$21.10	\$11.10	\$458	\$241	\$1.53	\$0.80	
Private (Leased Grazing)	AUY	4%	\$108	\$81	\$1,564	\$1,173	\$5.21	\$3.91	
Salt & Minerals	Ton	8.00	\$220	\$165	\$1,760	\$1,320	\$5.87	\$4.40	
Protein Supplements	Ton	4.00	\$375	\$281	\$1,500	\$1,125	\$5.00	\$3.75	
Other		0.00	\$0	\$0	\$0	\$0	\$0.00	\$0.00	
Subtotal Feed Costs					\$16,988	\$14,077	\$56.63	\$46.92	
2. Other Variable Costs									
Vet and Medicine					\$1,900	\$1,425	\$6.33	\$4.75	
Livestock Hauling					\$2,400	\$1,800	\$8.00	\$6.00	
Hired Labor					\$30,000	\$22,500	\$100.00	\$75.00	
Operating Costs: Equipment & Machinery					\$5,500	\$4,125	\$18.33	\$13.75	
Operating Costs: Vehicle					\$4,000	\$3,000	\$13.33	\$10.00	
Ranch Maintenance					\$5,500	\$3,750	\$16.67	\$12.50	
Marketing Costs ³		3.00%	\$29.94	\$17.86	\$6,706	\$4,002	\$22.35	\$13.34	
Other					\$2,000	\$1,500	\$6.67	\$5.00	
Subtotal Other Variable Costs					\$57,506	\$42,102	\$191.69	\$140.34	
3. Interest on Variable Costs									
<i>Sum of Variable Costs X Months Borrowed X Interest Rate Per Month</i>									
Annual Interest Rate					6.5%				
Number of Months Borrowed					8				
Interest Costs					\$3,228	\$2,434	\$10.76	\$8.11	
Total Variable Costs					\$77,722	\$58,613	\$259.07	\$195.38	
4. Returns Above Variable Costs					\$145,817	\$74,777	\$486.06	\$249.26	

Ownership Costs⁴

	High	Low	Value Per Cow		New Value
			High	Low	
Cash Costs					
<i>Taxes & Insurance</i>	\$48,700	\$31,655	\$162.33	\$105.52	
<i>Overhead</i>	\$3,000	\$1,950	\$10.00	\$6.50	
Total Fixed Cash	\$51,700	\$33,605	\$172.33	\$112.02	
Non Cash Costs					
<i>Purchased Livestock</i>	\$8,805	\$5,723	\$29.35	\$19.08	
<i>Machinery & Equipment⁵</i>	\$15,295	\$9,942	\$50.98	\$33.14	
<i>Housing & Improvements</i>	\$34,381	\$22,348	\$114.60	\$74.49	
<i>Interest On Retained Livestock⁶</i>	\$15,557	\$10,112	\$51.86	\$33.71	
<i>Management & Operation Labor (6% Of Gross Returns)</i>	\$8,749	\$4,487	\$29.16	\$14.96	
Total Fixed Non-Cash	\$82,787	\$52,611	\$275.96	\$175.37	
Total Fixed Costs Cash & Non Cash	\$134,487	\$86,216	\$448.29	\$287.39	
Total Cash Costs Fixed And Variable Costs	\$129,422	\$92,218	\$431.41	\$307.39	
Total Costs Fixed And Variable Costs	\$212,209	\$144,830	\$707.36	\$482.77	
Returns Above Total Cash Costs	\$94,117	\$41,172	\$313.72	\$137.24	
Returns Above Total Costs	\$11,330	(\$11,440)	\$37.77	(\$38.13)	

Breakeven Calculations

	High Prices				Low Prices			
	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs
Required Average Calf Prices Cash Cost (Cwt)	\$59.05	\$98.33	\$44.53	\$70.06	\$59.05	\$98.33	\$44.53	\$70.06
Required Average Calf Prices Total Costs(Cwt)	\$59.05	\$161.22	\$44.53	\$110.03	\$59.05	\$161.22	\$44.53	\$110.03

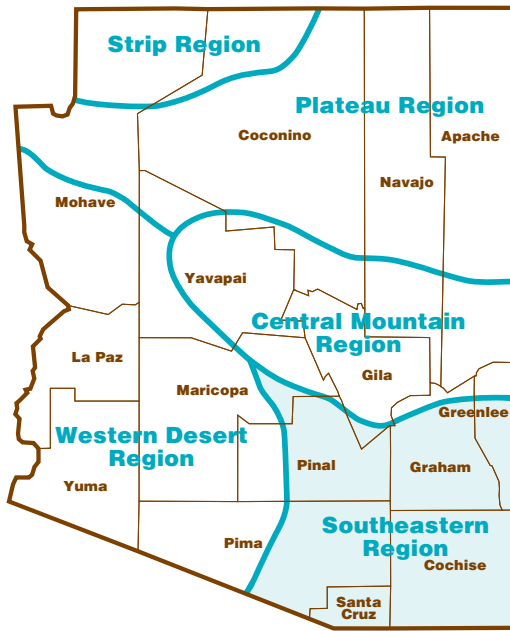
1. Calf crop is defined as the actual number of calves sold divided by the total number of cows (assumption is all cows are exposed).
2. Prices represent a nineteen-year Arizona average price received +/- 1 Standard Deviation. Data from CattleFax report for Arizona feeder cattle cash prices.
3. Marketing prices include commissions, brand inspections, beef council, yardage, feed, and insurance at 3% on all animals sold.
4. Annual capital recovery is the method of calculating depreciation and interest recommended by the National Task Force on Commodity Costs and Returns Measurement Methods.
5. The 35% reduction in asset values represents a mix of new and used machinery.
6. Interest on average investment.

Ranch Investments

Number and Items	Price Per Unit	10-Yr-Avg Rate of Return ¹	Purchase Price	Salvage/Cull Value	Useful Life	Livestock Share	Annual Taxes & Insurance	Annual Capital Recovery
Land Values								
850 Acres of private land	\$1,100	3.9%	\$935,000	\$935,000			\$21,542.40	
405 AU Values ²	\$1,800	3.9%	\$729,000	\$729,000				
		Sub Total	\$1,664,000					
Buildings, Improvements								
2 Miles of pipeline	\$1,200	3.9%	\$2,400	\$240	25	100	\$21	\$146
5 Wells	\$12,300	3.9%	\$61,500	\$6,150	25	100	\$541	\$3,746
4 Dirt Tanks	\$4,500	3.9%	\$18,000	\$1,800	10	100	\$158	\$2,058
50 Miles of Fence	\$7,000	3.9%	\$350,000	\$35,000	20	100	\$3,080	\$24,338
2 Corrals/Working Facilities	\$12,000	3.9%	\$24,000	\$2,400	30	100	\$211	\$1,328
1 Barns & Shop	\$50,000	3.9%	\$50,000	\$5,000	30	100	\$440	\$2,766
		Sub Total	\$505,900				\$25,994	\$34,381
		Interest Rate³						
Machinery & Vehicles								
1 1/2 ton pickup 4WD	\$20,700	10.0%	\$20,700	\$4,140	7	50	\$91	\$1,908
1 3/4 ton pickup 4WD	\$23,700	10.0%	\$23,700	\$4,740	7	50	\$104	\$2,184
1 Dozer/Tractor	\$10,000	10.0%	\$10,000	\$2,000	7	100	\$88	\$1,843
2 Gooseneck trailer	\$6,500	10.0%	\$13,000	\$2,600	7	100	\$114	\$2,396
1 Water truck	\$28,000	10.0%	\$28,000	\$5,600	7	100	\$246	\$5,161
1 Horse tack	\$5,000	10.0%	\$5,000	\$1,000	10	100	\$44	\$751
1 Misc. equipment	\$7,000	10.0%	\$7,000	\$1,400	10	100	\$62	\$1,051
		Sub Total	\$107,400				\$750	\$15,295
		Interest Rate⁴						
Purchased Livestock								
6 Horses	\$2,500	8.0%	\$15,000	\$5,700	10	100	\$132	\$1,842
20 Bulls	\$1,600	8.0%	\$32,000	\$12,160	4	100	\$282	\$6,963
33 Total AUYS								
		Sub Total	\$47,000				\$414	\$8,805
		Interest Rate						Interest on Investment
Retained Livestock								
300 Cows	\$750	8.0%	\$225,000	\$85,500				\$14,194
36 Replacement Heifers	\$600	8.0%	\$21,600	\$8,208				\$1,363
327 Total AUYS								
		Sub Total	\$246,600	\$93,708				\$15,557
		Total	\$2,570,900				\$48,700	\$58,481

1. The interest rate of 3.9% used to calculate the capital recovery cost is the USDA-ERS's ten-year-average, long-run rate of return to production assets for Arizona. 2. AU Numbers represent 1.35 times the total numbers of cows. This number should not be compared to the AUYS number on the budget page. 3. For intermediate assets, an interest rate of 2% above prime is used. 4. The 8% reflects a typical return on a low-risk investment (prime).

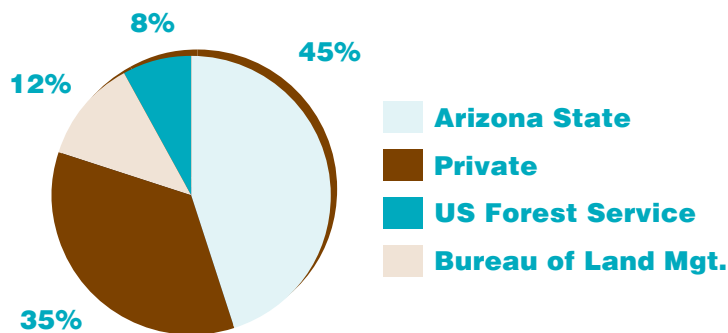
SOUTHEASTERN REGION



The Southeastern Desert Region includes all of Cochise, Pinal, and Santa Cruz counties, as well as those portions of Graham and Greenlee counties south of the Apache National Forest and the San Carlos Reservation. The eastern two-thirds of Pinal County and the eastern half of Pima County are

also included. Elevations vary from about 2,000 feet in the desert around Tucson to a high of 10,713 feet on Mt. Graham. Rainfall averages from eight inches per year in the lower elevations to 30 inches on some of the higher mountains. Approximately 60% of this precipitation falls from June through September. The remaining 40% falls from October through May. The highest mean monthly temperature is 86° F. while the lowest is 37° F. Vegetation found in this area ranges from cacti in the desert to ponderosa pine on the mountains. Several species of grama grass, lovegrass, mesquite, piñon, juniper, and other desert shrubs are found in this area. The land ownership mix common to this region consists of approximately 45% on state land, 35% on private land, 12% on Bureau of Land Management (BLM) land, and the remaining 8% of grazing occurring on Forest Service (USFS) land. Listed land resource units found within the region are Arizona & New Mexico Mountains, Sonoran Basin & Range, Southeastern Arizona Basin & Range, and Southern Desertic Basins, Plains, & Mountains.

SOUTHEASTERN DESERT REGION LAND OWNERSHIP



Ranch Budgets

Herd Descriptions

Breed Herd Size 250 Cow-to-Bull Ratio 20 Calf Crop Percentage¹ 80% Cull Rate 15% Repl. Heifers Kept 38

Value of Production

	Quantity	Weight	High Price ²	Low Price	High Value	Low Value	Value per Cow		New Value
							High	Low	
Steer Calves	100	600	\$1.84	\$1.09	\$110,544	\$65,185	\$442.18	\$260.74	
Heifer Calves	63	570	\$1.67	\$0.99	\$59,351	\$35,112	\$237.40	\$140.45	
Cull Cows	38	900	\$0.76	\$0.48	\$25,637	\$16,180	\$102.55	\$64.72	
Cull Bulls	3	1300	\$0.96	\$0.66	\$3,915	\$2,689	\$15.66	\$10.76	
Total Head Sold	203								
Total Value Produced					\$199,446	\$119,165	\$797.79	\$476.66	

Variable Costs

	Units	Quantity/ Percent	High Price	Low Price	High Cost	Low Cost	Value per Cow		New Value
							High	Low	
1. Feed Costs									
Hay	Ton	50.00	\$230	\$173	\$11,500	\$8,625	\$46.00	\$34.50	
BLM	AUY	12.0%	\$16.20	\$16.20	\$593	\$593	\$2.37	\$2.37	
State	AUY	45.0%	\$27.60	\$27.60	\$3,788	\$3,788	\$15.15	\$15.15	
USFS	AUY	8.0%	\$16.20	\$16.20	\$395	\$395	\$1.58	\$1.58	
Private (Owned)	AUY	25.0%	\$30.00	\$23	\$2,288	\$1,716	\$9.15	\$6.86	
Private (Leased Grazing)	AUY	10.0%	\$200	\$150	\$6,100	\$4,575	\$24.40	\$18.30	
Salt & Minerals	Ton	1.50	\$200	\$150	\$300	\$225	\$1.20	\$0.90	
Protein Supplements	Ton	2.00	\$400	\$300	\$800	\$600	\$3.20	\$2.40	
Other		0.00	\$0	\$0	\$0	\$0	\$0.00	\$0.00	
Subtotal Feed Costs					\$25,764	\$20,517	\$103.06	\$82.07	
2. Other Variable Costs									
Vet and Medicine					\$7,500	\$5,000	\$30.00	\$20.00	
Livestock Hauling					\$2,500	\$1,500	\$10.00	\$6.00	
Hired Labor					\$35,000	\$25,000	\$140.00	\$100.00	
Operating Costs: Equipment & Machinery					\$3,500	\$2,625	\$14.00	\$10.50	
Operating Costs: Vehicle					\$4,500	\$3,375	\$18.00	\$13.50	
Ranch Maintenance					\$8,000	\$6,000	\$32.00	\$24.00	
Marketing Costs ³		3.00%	\$29.46	\$17.60	\$5,983	\$3,575	\$23.93	\$14.30	
Other					\$1,500	\$1,125	\$6.00	\$4.50	
Subtotal Other Variable Costs					\$68,483	\$48,200	\$273.93	\$192.80	
3. Interest on Variable Costs									
<i>Sum of Variable Costs X Months Borrowed X Interest Rate per Month</i>									
Annual Interest Rate					5.0%				
Number of Months Borrowed					8				
Interest Costs					\$3,142	\$2,291	\$12.57	\$9.16	
Total Variable Costs					\$97,389	\$71,007	\$389.56	\$284.03	
4. Returns Above Variable Costs					\$102,058	\$48,158	\$408.23	\$192.63	

Ownership Costs⁴

	High	Low	Value Per Cow		New Value
			High	Low	
Cash Costs					
<i>Taxes & Insurance</i>	\$5,096	\$3,313	\$20.39	\$13.25	
<i>Overhead</i>	\$3,000	\$1,950	\$12.00	\$7.80	
Total Fixed Cash	\$8,096	\$5,263	\$32.39	\$21.05	
Non Cash Costs					
<i>Purchased Livestock</i>	\$6,975	\$4,534	\$27.90	\$18.13	
<i>Machinery & Equipment⁵</i>	\$6,745	\$4,384	\$26.98	\$17.54	
<i>Buildings & Improvements</i>	\$26,650	\$17,323	\$106.60	\$69.29	
<i>Interest On Retained Livestock⁶</i>	\$13,248	\$8,611	\$52.99	\$34.44	
<i>Management & Operation Labor (6% Of Gross Returns)</i>	\$6,123	\$2,889	\$24.49	\$11.56	
Total Fixed Non-Cash	\$59,741	\$37,741	\$238.97	\$150.96	
Total Fixed Costs Cash & Non Cash	\$67,838	\$43,004	\$271.35	\$172.01	
Total Cash Costs Fixed and Variable Costs	\$105,485	\$76,270	\$421.94	\$305.08	
Total Costs Fixed and Variable Costs	\$165,226	\$114,011	\$660.91	\$456.04	
Returns Above Total Cash Costs	\$93,961	\$42,895	\$375.85	\$171.58	
Returns Above Total Costs	\$34,220	\$5,154	\$136.88	\$20.62	

Breakeven Calculations

	High Prices				Low Prices			
	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs	High Variable Costs	High Total Costs	Low Variable Costs	Low Total Costs
Required Avg. Calf Prices Cash Cost (Cwt)	\$83.24	\$90.16	\$60.69	\$65.19	\$83.24	\$90.16	\$60.69	\$65.19
Required Avg. Calf Prices Total Costs (Cwt)	\$83.24	\$141.22	\$60.69	\$97.45	\$83.24	\$141.22	\$60.69	\$97.45

1. Calf crop is defined as the actual number of calves sold divided by the total number of cows (assumption is all cows are exposed).
2. Prices represent a nineteen-year Arizona average price received +/- 1 Standard Deviation. Data from CattleFax report for Arizona feeder cattle cash prices.
3. Marketing prices include commissions, brand inspections, beef council, yardage, feed, and insurance at 3% on all animals sold.
4. Annual capital recovery is the method of calculating depreciation and interest recommended by the National Task Force on Commodity Costs and Returns Measurement Methods.
5. The 35% reduction in asset values represents a mix of new and used machinery.
6. Interest on average investment.

Ranch Investments

Number and Item	Price Per Unit	10-Yr-Avg Rate of Return ¹	Purchase Price	Salvage/Cull Value	Useful Life	Livestock Share	Annual Taxes & Insurance	Annual Capital Recovery
Land Values								
300 Acres of private land	\$600	3.9%	\$180,000	\$180,000			\$4,147.20	
375 AU Values ²	\$3,000	3.9%	\$1,125,000	\$1,125,000				
		Subtotal	\$1,305,000					
Buildings, Improvements								
10 Miles of pipeline	\$1,200	3.9%	\$12,000	\$1,200	25	100	\$106	\$731
2 Wells	\$12,300	3.9%	\$24,600	\$2,460	25	100	\$216	\$1,498
6 Windmills	\$20,000	3.9%	\$120,000	\$12,000	10	100	\$1,056	\$13,717
8 Dirt Tanks	\$1,500	3.9%	\$12,000	\$1,200	10	100	\$106	\$1,372
30 Miles of Fence	\$3,500	3.9%	\$105,000	\$10,500	25	100	\$924	\$6,395
3 Corrals/Working Facilities	\$7,000	3.9%	\$21,000	\$2,100	30	100	\$185	\$1,162
2 Barns & Shop	\$16,000	3.9%	\$32,000	\$2,880	30	100	\$282	\$1,776
		Sub Total	\$326,600				\$7,021	\$26,650
		Interest Rate³						
Machinery & Vehicles								
1 3/4 ton pickup 4WD	\$23,700	10.0%	\$23,700	\$4,740	7	50	\$104	\$2,184
1 Dozer/Tractor	\$10,000	10.0%	\$10,000	\$2,000	7	100	\$88	\$1,843
2 Gooseneck trailer	\$3,500	10.0%	\$7,000	\$1,400	7	100	\$62	\$1,290
1 Horse tack	\$5,000	10.0%	\$5,000	\$1,000	10	100	\$44	\$751
1 Misc. equipment	\$4,500	10.0%	\$4,500	\$900	10	100	\$40	\$676
		Sub Total	\$50,200				\$337	\$6,745
		Interest Rate⁴						
Purchased Livestock								
5 Horses	\$2,500	8.0%	\$12,500	\$4,750	10	100	\$110	\$1,535
13 Bulls	\$2,000	8.0%	\$25,000	\$9,500	4	100	\$220	\$5,440
22 Total AUYS								
		Sub Total	\$37,500				\$330	\$6,975
		Interest Rate						Interest on Investment
Retained Livestock								
250 Cows	\$750	8.0%	\$187,500	\$71,250				\$11,829
38 Replacement Heifers	\$600	8.0%	\$22,500	\$8,550				\$1,419
278 Total AUYS								
		Sub Total	\$210,000	\$79,800				\$13,248
		Total	\$1,929,300				\$5,096	\$15,495

1. The interest rate of 3.9% used to calculate the capital recovery cost is the USDA-ERS's ten-year-average, long-run rate of return to production assets for Arizona. 2. AU Numbers represent 1.35 times the total numbers of cows. This number should not be compared to the AUYS number on the budget page. 3. For intermediate assets, an interest rate of 2% above prime is used. 4. The 8% reflects a typical return on a low-risk investment (prime).

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